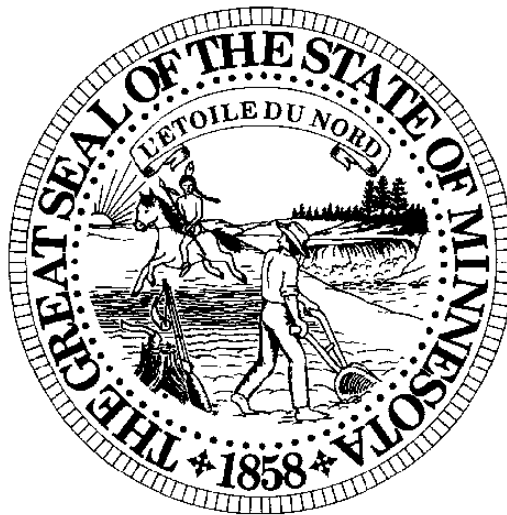


**Report on the
Common Alert Protocol (CAP)
generated
Required Monthly Test (RMT)
of the
Emergency Alert System**

6 November 2013



Prepared by

Department of Public Safety
Division of Homeland Security and Emergency Management

For the Minnesota Statewide Emergency Communications Board

Table of Contents

Executive Summary	1
Goals of this test:	1
Scope	2
Conclusion	3
Recommendations	3
Survey Question Response	4
General: Demographic information and response guidance	4
Question # 1 Please list your call letters or the City of head end operation for Cable / IPTV?	4
Question # 2 How did you receive the RMT?	5
Legacy EAS Reception:	5
Question # 3 If you received the RMT first via legacy EAS, was the IPAWS CAP feed RMT also received and logged as “duplicate” or “already heard”?	6
Question # 4 If you received the RMT first via legacy EAS, what monitored station did that legacy EAS RMT arrive from?	6
Question # 5 After reviewing the decoder log, what was the time difference between the Legacy EAS and the IPAWS CAP messages?	7
IPAWS Reception:	7
Question # 6 If you received the RMT first via the IPAWS CAP feed, was the RMT also received via legacy EAS and logged as “duplicate” or “already heard”?	8
Monitoring:	8
Question # 7 How frequently does your EAS unit poll the IPAWS CAP feed?	9
Question # 8 If you received the RMT first via the IPAWS CAP feed and you were you able preview the message prior to airing it?	9
Question # 9 Was the Text-to-Speech quality aired acceptable?	10
Equipment and Comments:	12
Question # 10 What type of EAS equipment are you operating?	12
Question # 11 Comments	13

We would like to acknowledge the following for their participation and hard work prior to running this Required Monthly Test (RMT): the Integrated Public Alert and Warning System (IPAWS) committee of the Statewide Emergency Communications Board for the development of the questions asked in this survey, the Department of Public Safety, Office of Communications, the Minnesota Broadcasters Association, the Minnesota Cable Communications Association and the Minnesota Telco Alliance for informing their members of what was going to happen with this scheduled RMT.

Executive Summary

The Federal Communications Commission Code of Federal Regulations 47, Part §11.61 (a) (1) (i)¹ requires that states or territories test the emergency alert system once each calendar month and be rebroadcast by each EAS Participant as a test of the EAS system readiness within that state or territory. The Wireless Emergency Alert System was not part of this test as it is governed by a separate part of the Federal Communications Commission Code of Federal Regulations 47, Part § 10.350 (a) (4)². The National Weather Service Weather Radio was not part of this test. Currently the National Weather Service from each Weather Forecasting Office sends out a Required Weekly Test (RWT) through the NOAA system from their respective warning offices to the transmitters they operate from that office.

Initiating the first statewide Required Monthly Test (RMT) using the Common Alerting Protocol (CAP) will give the alert originating community (Public Safety) and the EAS Participants (Broadcast radio and television, cable and wire line providers) a snapshot of the future of alert and warning.

On November 6th of 2013, the Department of Public Safety, Division of Homeland Security and Emergency Management initiated the first statewide Required Monthly Test (RMT) using the Common Alerting Protocol (CAP). This report details the performance of this RMT from the EAS Participant perspective.

Goals of this test:

- Initiate a RMT via a CAP enabled interface at the Division of Homeland Security and Emergency Management sent through the FEMA (Federal Emergency Management Agency) IPAWS-OPEN (Integrated Public Alert and Warning System - Open Platform for Emergency Networks) platform.
- Test the Text To Speech (TTS) generators on the EAS Participants CAP enabled decoders.
- Verify that CAP enabled messages are displayed on the visual crawls on television and cable.
- Gather information on the performance of the test.

¹ Tests in odd numbered months shall occur between 8:30 a.m. and local sunset. Tests in even numbered months shall occur between local sunset and 8:30 a.m. They will originate from Local or State Primary sources. The time and script content will be developed by State Emergency Communications Committees in cooperation with affected EAS Participants. Script content may be in the primary language of the EAS Participant. These monthly tests must be transmitted within 60 minutes of receipt by EAS Participants in an EAS Local Area or State. Analog and digital class D non-commercial educational FM, analog and digital LPFM stations, and analog and digital LPTV stations are required to transmit only the test script.

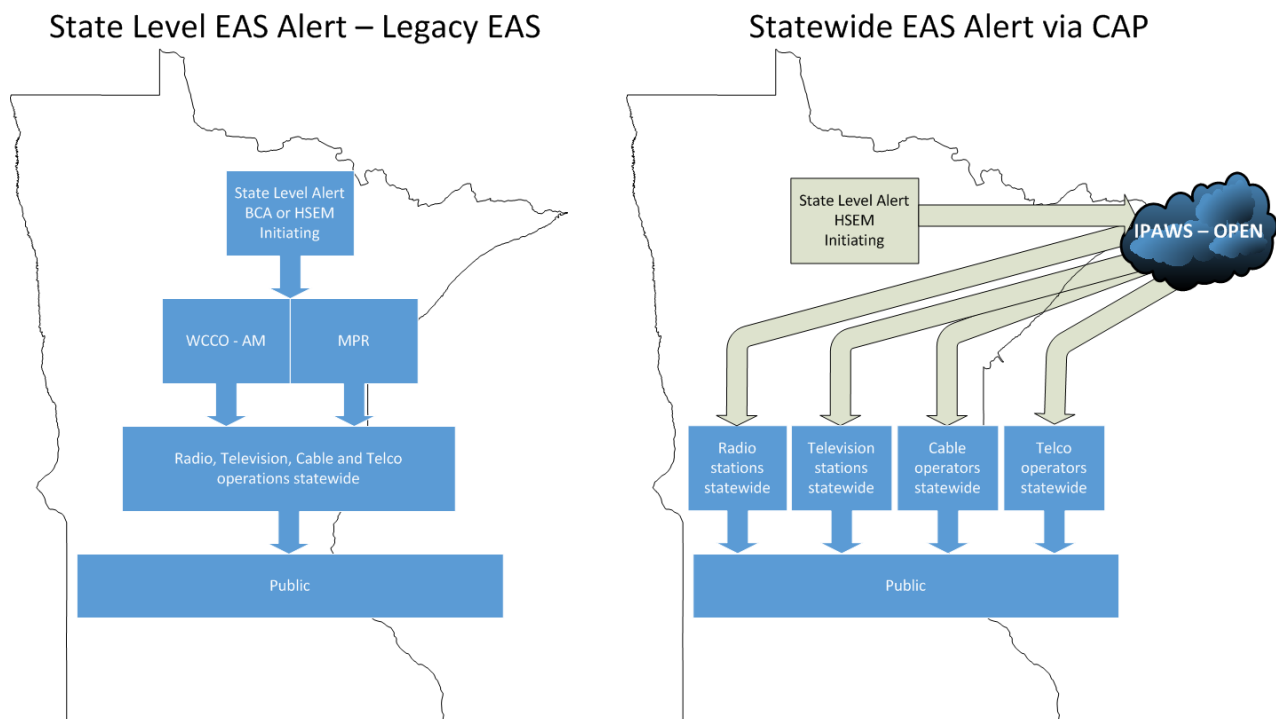
² The RMT shall be initiated only by the Federal Alert Gateway Administrator using a defined test message. Real event codes or alert messages shall not be used for the WEA RMT message.

Scope

The test was to take place in the scheduled RMT time slot (first Wednesday of the month at 1:44 p.m.) for November. The text of the message was sent out to the EAS Participants prior to the test to verify this was the actual message to be aired. The text of the message was as follows:

“This is a monthly coordinated test of the broadcast stations in your area. If this had been an actual emergency, official messages would have followed the alert tone. This concludes a test of the Emergency Alert System.”

The graphics below show how the test goes out in each respective method.



There a delay in the test going out. It was scheduled to be initiated at 1:44 p.m. and, it was initiated at that time. Due to an operational error, the alert looked as if it went out at the scheduled time of the test but, while waiting for a verification reply it was determined the alert may not have gone out so, the operator made a second attempt that went out successfully at 1:53 p.m.

Note: The system log files and related documents from this test were sent to the vendor for review to help determine if it is an operator training or an equipment interface issue.

Conclusion

The Department of Public Safety conducted a survey following the test. Nearly seventy five percent of EAS Participants stated they received the RMT via CAP first. Less than five percent of the respondents stated they did not receive the test at all.

The test and subsequent survey answered two important questions.

- Eighty percent of the respondents reported the text to speech (TTS) message was understandable.
- The text of the CAP message displayed as entered and, on most television and cable displays, it repeated through the crawl at least two times.

Recommendations

Further need to expand testing to include:

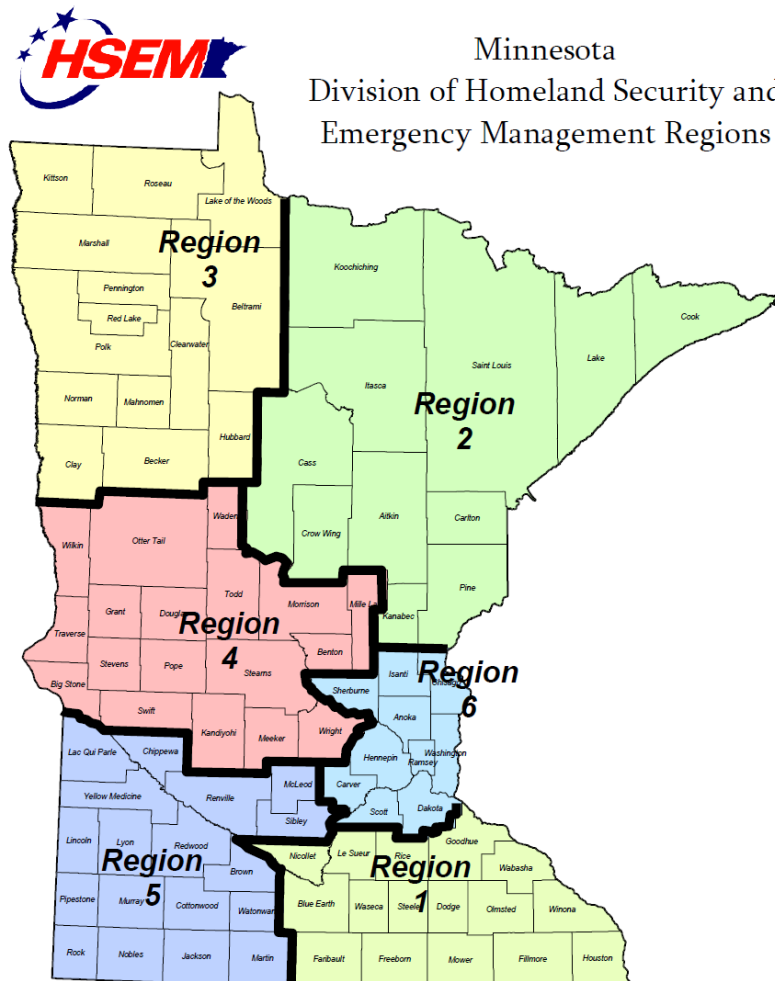
- Changing the script to expand on how messages will be delivered by text to speech (TTS).
- Expand to include prerecorded voice messages and verify delivery and play back on the EAS participants' equipment.
- Ensure that "Legacy" EAS is also tested in a regular rotation of the RMT schedule to be able to verify that Presidential alerts will be successfully delivered.
- Include (Collaborative Operating Group) COG to COG (Public Safety elements) in the monthly testing.

Survey Question Response

General: Demographic information and response guidance

Question # 1 Please list your call letters or the City of head end operation for Cable / IPTV?

From the stations call letters or city of head end operation, responses are categorized by their location within the six HSEM regions in the state. One hundred and sixteen responses were submitted representing one hundred and seventy two stations or media outlets.

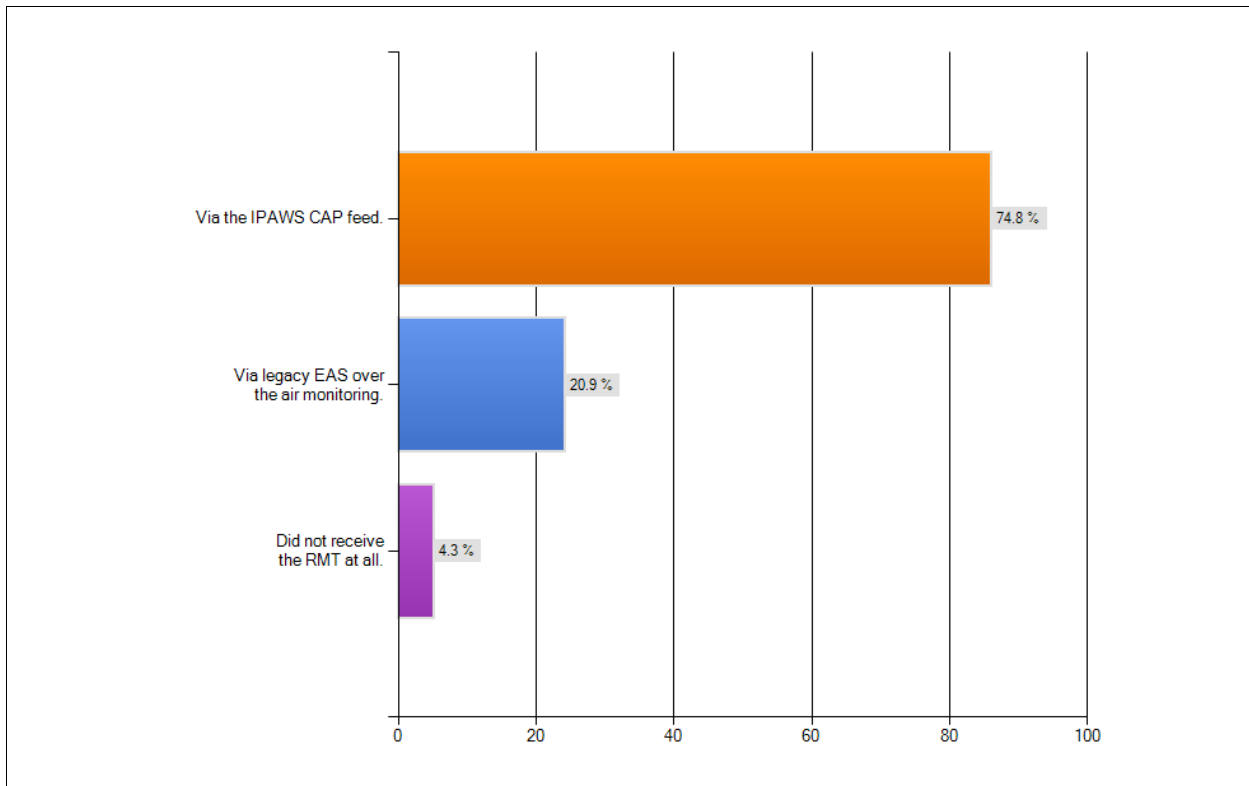


Region	Number of responses	Representing stations / outlets
1 SE	21	29
2 NE	20	25
3 NW	21	39
4 Central	22	38
5 SW	12	15
6 Metro	20	26

Question # 2 How did you receive the RMT?

Question two determined the course of the survey for each respondent.

- Via the IPAWS CAP feed (choosing this moved the respondent to question 6)
- Via legacy EAS over-the-air monitoring (choosing this moves the respondent to question 3, 4 and 5, and skips 6)
- Did not receive the RMT at all (choosing this moves the respondent to question 10 as most of the survey would not have applied to them)

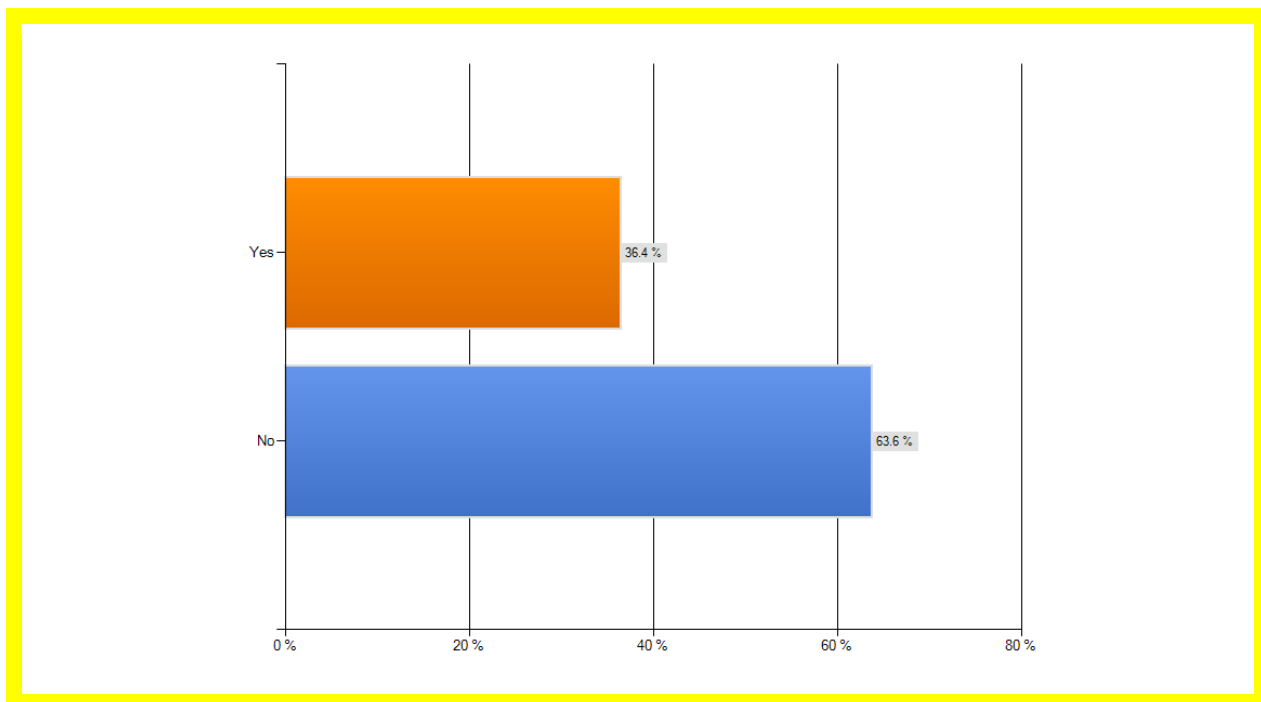


Legacy EAS Reception: (Questions highlighted in yellow)

Legacy EAS reception refers to the traditional way of receiving a message through the EAS chain (over-the-air monitoring) It moves from the originator to the state wide relay stations (WCCO and MPR) to the receiving station and then finally to the public. These questions were asked in response to question two if they indicated that they received the RMT via the “legacy” EAS. By reviewing the answers to the following three questions it could help determine what type of monitoring problem may have occurred whether the station they monitor over the air played the message immediately and a possibility of delay(s) in internet service to a location, or region.

Question # 3 If you received the RMT first via legacy EAS, was the IPAWS CAP feed RMT also received and logged as “duplicate” or “already heard”?

This question was asked to find out whether a second alert, received via the CAP enabled internet connection, was just “logged” by the EAS equipment and not broadcast a second time. Of the twenty percent of the respondents that stated they received the test via the “Legacy” method first, thirty six percent of the respondents indicated that it did just log it and not rebroadcast the alert a second time.

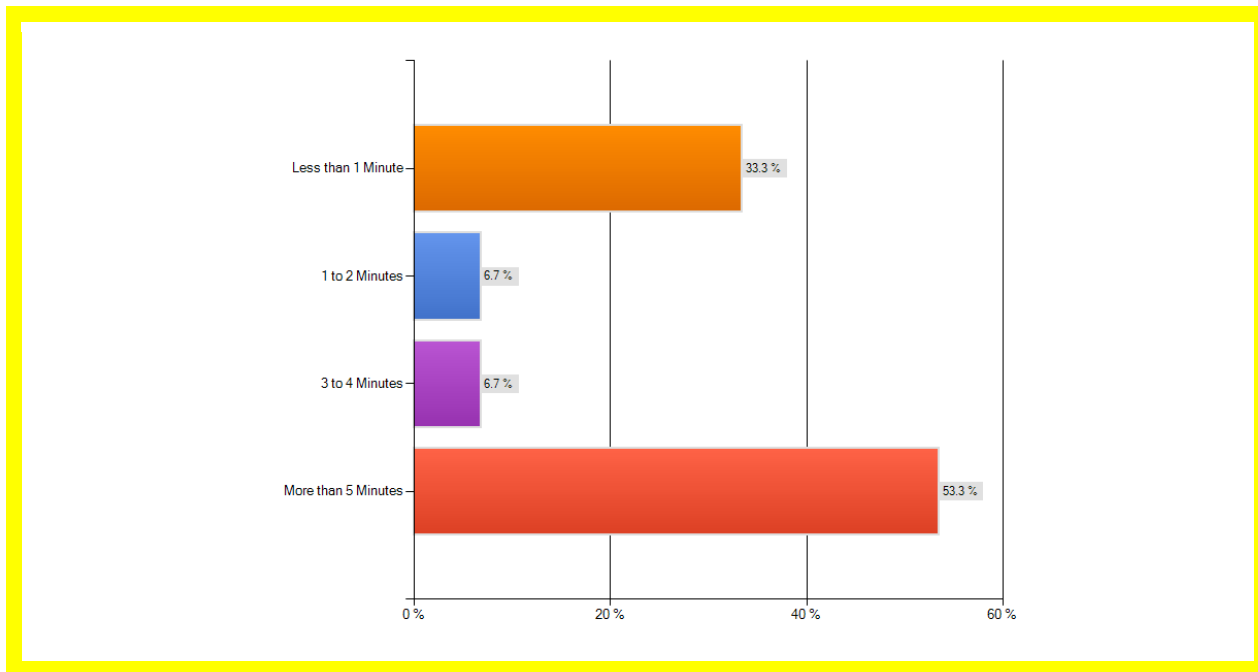


Question # 4 If you received the RMT first via legacy EAS, what monitored station did that legacy EAS RMT arrive from?

Seventeen stations, cable or wire line providers reported they received the over the air “Legacy” EAS message from their assigned MPR (Minnesota Public Radio) monitoring point according to the state plan. The other remaining three were entities serving Minnesota customers from outside of Minnesota.

Question # 5 After reviewing the decoder log, what was the time difference between the Legacy EAS and the IPAWS CAP messages?

This question is answered in two parts. The first (shown below) is the amount of latency reported at each station for the CAP alert coming versus the legacy alert. The second part will be to show, by region, the amount of delay.



The second part of this question attempted to identify gaps in the system. Fifty-three percent of respondents that indicated there was gap of greater than 5 minutes between the receipt of the “Legacy” transmission and the CAP generated alert over their internet connection. The responses were scattered throughout the state and by equipment vendor so no conclusion can be reached.

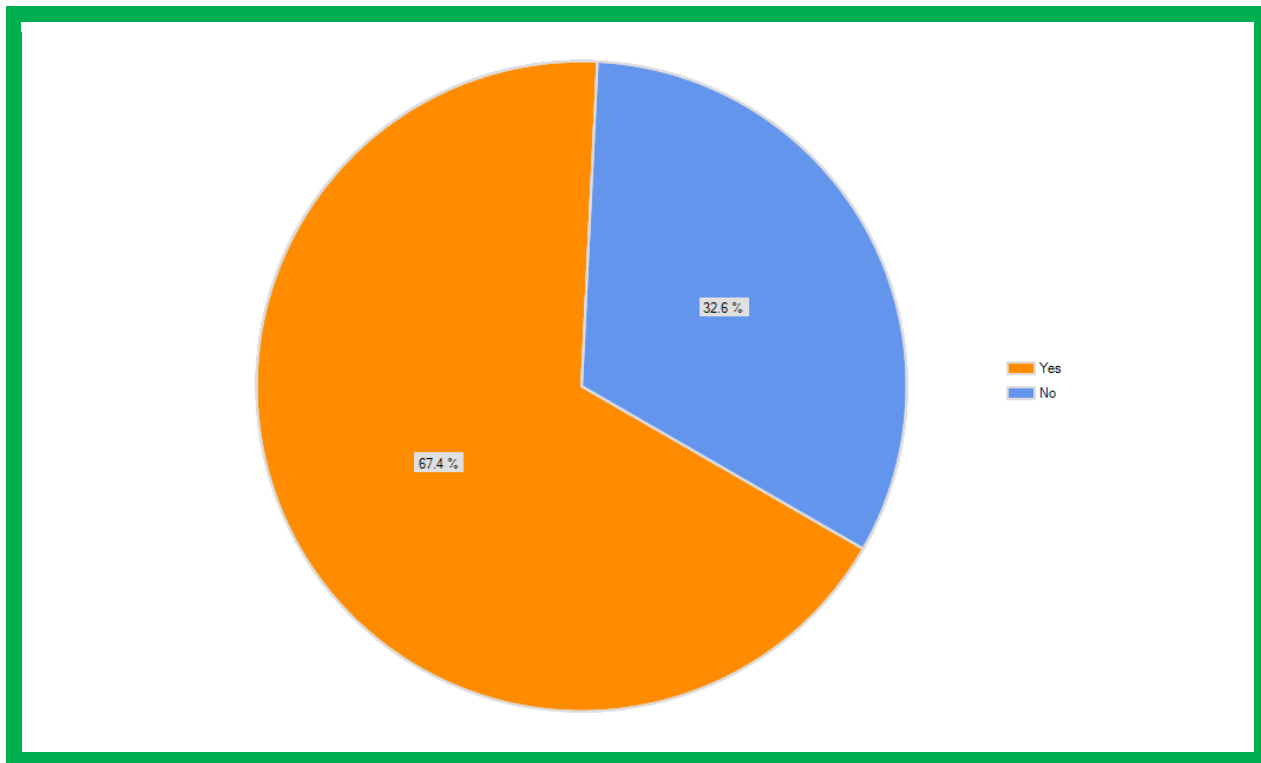
Region	1 (SE)	2 (NE)	3 (NW)	4 (Central)	5 (SW)	6 (Metro)
Number of Responses	4	4	6	2	2	1

IPAWS Reception: (Related questions highlighted in green)

These responses would let us know the equipment is functioning as it is expected to; if an alert is received via CAP first it should filter out the second alert received via legacy EAS.

Question # 6 If you received the RMT first via the IPAWS CAP feed, was the RMT also received via legacy EAS and logged as “duplicate” or “already heard”?

This question was asked to find out if a second alert came in via the Legacy (over-the-air) monitoring port was it just “logged” in the machine and not broadcast a second time.



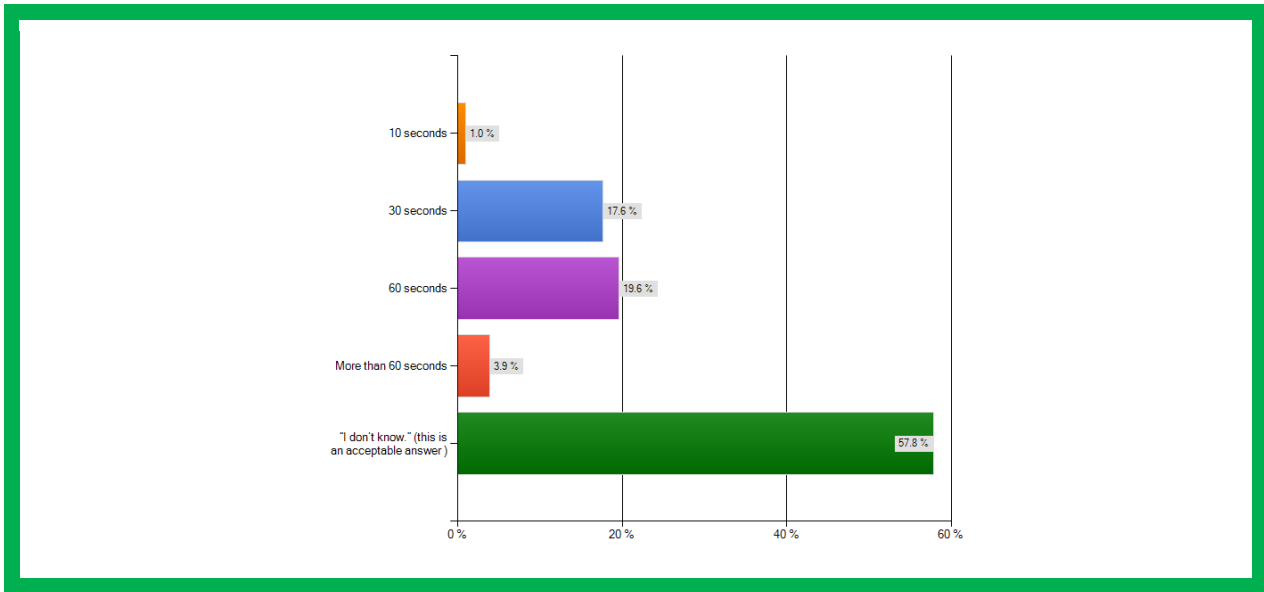
Monitoring:

These questions were asked to find out:

- How frequently a station polled the IPAWS-OPEN server (to find an average other than the expected 60 seconds which seems to be the default for most manufactures)
- If most stations preview the message prior to sending it out
- Did the Text To Speech generator function work properly

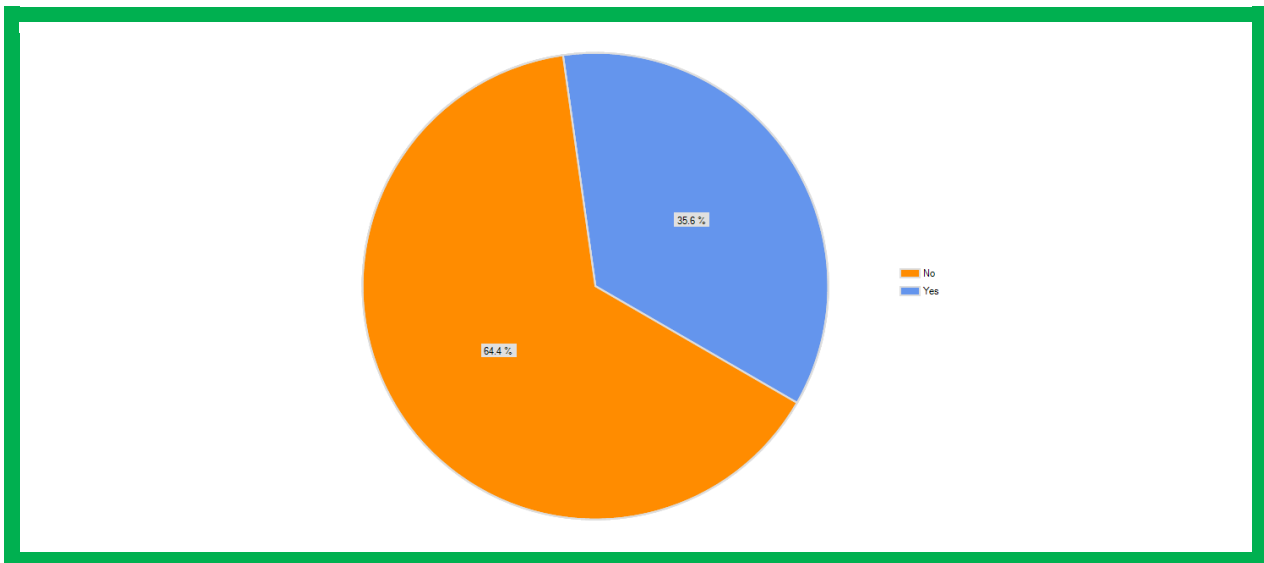
Question # 7 How frequently does your EAS unit poll the IPAWS CAP feed?

This question was asked to get a picture of amount of times the EAS Participants are actually polling the IPAWS-OPEN server. Most manufacturers are setting their default time on equipment to once every 30 to 60 seconds.



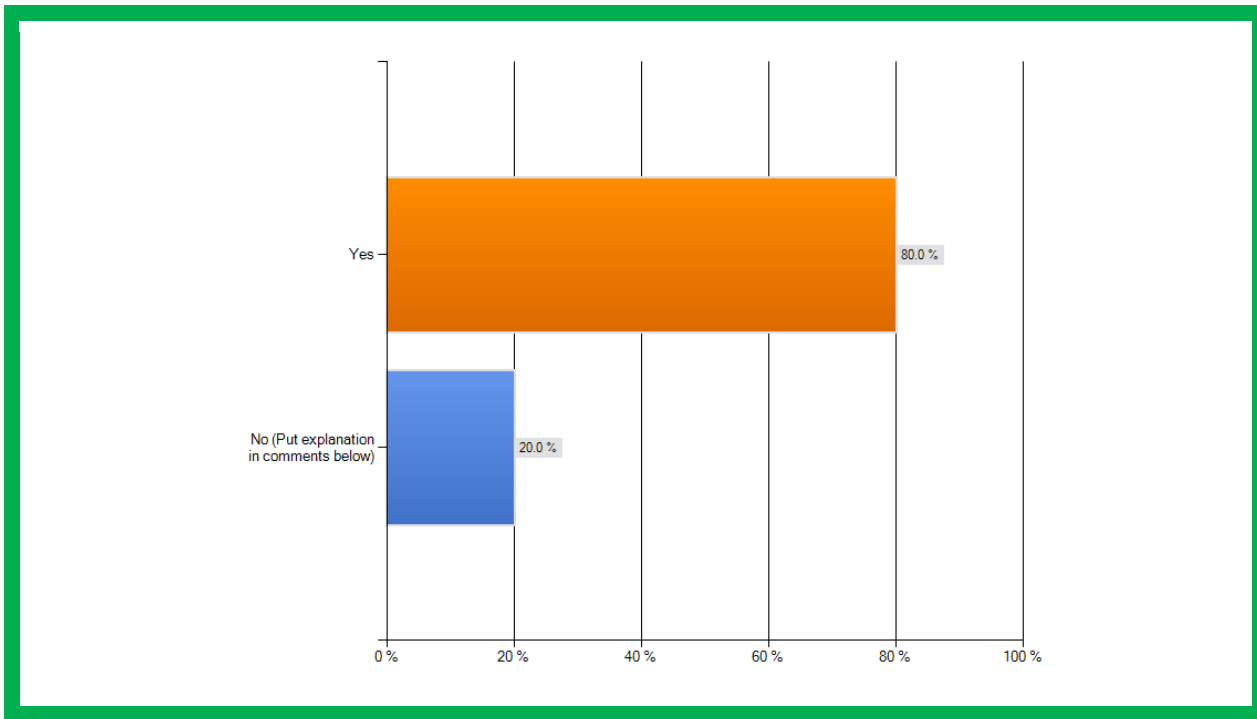
Question # 8 If you received the RMT first via the IPAWS CAP feed and you were you able preview the message prior to airing it?

This question was asked to see if a station had the capability to preview the message prior to transmitting it to the air. This would give staff at the stations a preview of the message and possibly prepare them for phone calls that may be generated after airing the message.



Question # 9 Was the Text-to-Speech quality aired acceptable?

This question was asked to find out if the TTS generated would be acceptable for broadcast. In the past this has been a problem with “daisy chained” audio becoming distorted by the time it reached the final station or public. Respondents were asked to comment if their answer was no. Twenty eight comments were received.



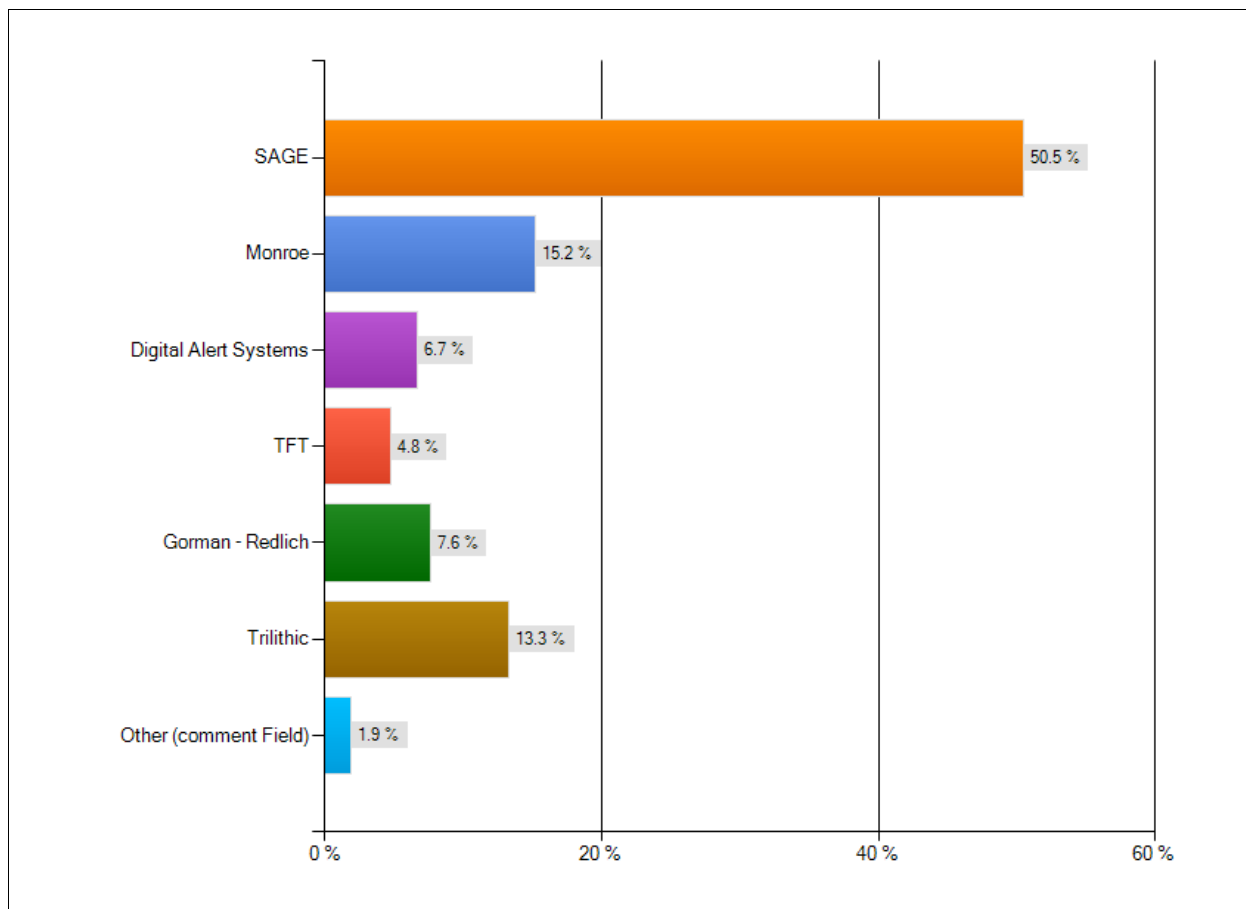
- no audio (4 like responses)
- DID NOT ACTUALLY HEAR THE AIRED TTS MSG...HOWEVER I DID PLAY BACK THE STORED MSG FROM THE EAS UNIT.
- We discovered that the settings were not configured properly. We have since changed these configurations for future tests.
- no speech tones and crawl okay
- Crawl on legacy boxes. Full page on DTAs and MDTAs.
- RECEIVED AND AIRED FROM MPR
- we received the test at 2:16pm but it didn't go over the air. 2 or 3 minutes later it went out over the air.

- Very quiet
- the Sage speech to text conversion sounds like "HAL"
- No message was heard
- THERE WAS NO AUDIO
- WE did not receive the IPAWS CAP at all. Engineers are looking into the reason. The legacy system is working fine.
- The test came over the air loud and clear at approx 1:59:30.
- dropped syllables in the statement
- Our TFT needs a firmware upgrade before the test would work. Unfortunately, that was only discovered last night and firmware upgrades are done at midnight. Speech may need to be enabled.
- Did not receive the IPAWS CAP feed
- Used the optional text to speech engine. Sounded OK.
- Unfortunately we did not have the CAP alerts enabled plus we were informed that the alert will not be retransmitted.
- It was a little robotic but understandable.
- Audio was very quiet. It was also somewhat broken.
- It has much room for improvement--such as the mispronunciation of "station."
- I was unable to listen to the audio at the time. Another test next month would be good.
- The quality was fine, audio levels seemed low
- Lots of excess text and other info not needed for a RMT.
- I only heard the last few seconds of it, since it was 10 min. late, from the time of the letter.

Equipment and Comments:

Knowing the equipment manufacture is a key element to many of the questions asked in this survey it could rule out or narrow down to finer part of a question that if a part of this survey was answered the same way over and over again it could be a sign that may need to be addressed as a systemic or programming problem.

Question # 10 What type of EAS equipment are you operating?



- The other responses were:

tiernan

TFT EAS and Gorman Cap converter

Burk

Gorman - Redlich CAP-DEC 1 converter

Question # 11 Comments

If you have any comments on the test, or want to provide details on your answers above, please enter that information here. Thirty-five comments were received.

Note: The test went out a 1:53 p.m. not at 1:44 as stated in the EAS plan or the letter.

- Audio Played well, but Sage unit log said "No Audio Logged"
- I AM NOT SURE THE IPAWS SYSTEM IS WORKING PROPERLY...WILL CONTACT THE MANUFACTURER OF THE CAP-DEC-1 UNIT. IT IS WIRED TO THE INTERNET, AS I HAVE BEEN ABLE TO DOWNLOAD JAVA UPDATES. CONFIGURATION IS CORRECT AS WELL.
- It would be nice to test this on our own occasionally to insure that our settings are accurate. If we have something incorrectly configured we only find out during the test and then need to wait until the next test to see if our changes fixed the issue and have it configured properly.
- Crawl on legacy. Full screen on others.
- Worked on multiple CPE devices.
- Worked in all zones. Full page with text and audio.
- K*** has very poor internet service, many times none at all. Until someone puts reliable high speed out to our rural area, we will have very intermittent results from the CAPS system.
- RMT forwarding is set to automatic (immediate).
- I saw a RMT happen on our system then there was a runner over the NBC station about 10 minutes later. This runner only ran on the NBC station. But we did have 3 complete cable system interrupts between 1:44 and 2:05 Wednesday afternoon. I thought that was an excessive burden on our viewers.
- Received at 13:53 not 13:44 as stated. Forwarded for airing at 13:54:22 by DAS box.
- Surprised it worked as the tests from FEMA don't work much of the time.
- The legacy system worked fine. However, for some reason the IPAWS system did not trigger the RMT at all, although it has been working fine since installed. Engineers are looking into the problem.
- I received an email from our SAGE Unit at 13:51pm. This test did not go over the air. The duplicate sent just before 14:00 did air. Our SAGE unit automatically send an email to me for all EAS tests.
- Went well.
- None

- I received the RMT First Via Legacy but the IPAWS CAP Feed RMT was not logged or already heard.
- The second or legacy from MPRMUSIC stated NOT STORED- MESSAGE EXPIRED
- Our TFT CAPCON needs a firmware upgrade which is suppose to happen tonight.
- Don't understand the difference between IPAWS CAP and Legacy(?) EAS
- Never received the IPAWS alert
- Worked OK, but we needed to adjust the text to speech audio level up.
- As we are outside of Minnesota, none of our equipment was configured for Minnesota State Tests
- Received at 1:53PM (2 like responses)
- The sound quality was excellent! Obviously a little longer than the previous recorded messages (48 seconds) but the sound quality was excellent.
- Test came across at 1:54PM
- It aired just fine.
- Received at 1:55 p.m. CST, retransmitted immediately after EOM received.
- Received the alert at 1:53PM. Our sage box had it on the home page where we could either send it or kill it. At 1:59PM it was auto forward and went through with no problems. The delay between receiving and auto forwarding is the way our Sage is configured for a 5 min delay.
- Test received at 13:53:57
- Another test would be good in the future. This would give us an opportunity to check the audio. The notification of this test worked great.
- The test came in at 13:54:18 cst, which is 10 min. later than the stated time in the letter. I don't know if that is propagation time, or operator error. Also our unit didn't record the transmitted audio, as it does with ota alerts, so there is no record of whether or not the audio ever played out.
- Quality of the text to speech was ok but could be improved. A little garbled at times. I recorded the off air signal if someone would like to listen to it.
- Poll CAP from IPAWS Open 2.0 Server. Connected Last alert info at 'Wed Nov 6 13:54:36 2013'

This page left blank intentionally.